

These notes are in the following order:

1. Attendance
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4. HFBR Safeguards & Security, Len Butera
5. HFBR Panel – Questions and Answers
6. Community Comment
7. HFBR Panel Cont'd and/or CAC Discussion
8. Agenda Setting

1. Attendance

Members/Alternates Present:

See Attached Sheets.

Others Present:

C. Adey, M. Bebon, P. Bond, J. Carter, A. Carsten, J. D'Ascoli, L. Hill, M. Holland, K. Jacobs, B. Lein, B. Munson, M. Parsons, S. Penn, D. Quinn, R. Rimando, S. Robbins, D. Ryan, J. Tarpinian,

2. Correspondence and Handouts

Items one and two were mailed with a cover letter dated June 2, 2006. Items three through five were emailed. Item six was provided in the member's folders and items seven through eight were available as handouts.

1. Draft agenda for June 8, 2006
2. Draft notes for April 20, 2006
3. Draft letter to Town of Brookhaven re: Anthony Graves, June 1, 2006
4. Article from Rachel's Democracy & Health News, from D. Sprintzen, June 7, 2006
5. Notice of Mary Jane Sheridan's memorial service
6. Responses to previous meeting's Action Items on the HFBR
7. Alternative Timeframes Table
8. Presentation on HFBR Safeguards and Security

3. Administrative

The meeting began at 6:40 p.m. Those present introduced themselves. Reed Hodgkin went over the ground rules and the draft agenda. Reed asked for questions on the agenda.

Reed introduced Peter Bond, Deputy Director for Science and Technology. Peter Bond welcomed the CAC on behalf of Interim Director Dr. Sam Aronson. Dr. Aronson was hosting the RHIC/AGS users meeting and sent apologies to the CAC for his absence.

Jeanne D'Ascoli welcomed Brian Munson, alternate for Mike Giacomaro, to the CAC meeting as a first time attendee. Additionally, Jeanne announced she received a phone call from

Brookhaven Town Supervisor Foley's office informing her that Anthony Graves would be continuing on as the representative of the Town of Brookhaven to the CAC. Anthony called Jeanne prior to the meeting. He sent his apologies for his absence, as he was not aware he would be serving. He will be in attendance next month.

Member Talbot commented that he met with Supervisor Foley to discuss the pending CAC letter to be sent to the Town on behalf of Anthony Graves. He was in possession of a letter from Supervisor Foley and requested it be read into the record. Reed read the letter. Supervisor Foley requested that Anthony Graves be reinstated as the Town of Brookhaven alternate representative to the Brookhaven National Laboratory's Community Advisory Council. Supervisor Foley determined that Anthony Graves had proven himself as a most valued and principled representative to the Town of Brookhaven. Supervisor Foley commended the CAC on its work to protect the environment.

Reed congratulated the CAC on this outcome.

Reed asked for comments, corrections, additions or deletions to be made on the April 20, 2006 action items and notes. Members Schwartz and Alayeva asked that the notes be corrected to reflect they were present at the meeting in April. The Action Items and notes were approved as amended.

Reed introduced Les Hill and asked for a recap of the HFBR discussion thus far.

Hill indicated that the two previous meetings on the topic reflected an effort to get information about this project to the CAC sooner than they had for past major decisions. A draft Feasibility Study and PRAP are currently being prepared and will be submitted to the regulators. Comments on the study are expected from the regulators sometime in the next month. The comments received from the regulators will be addressed in early July. It will be at least two months before the Feasibility Study and the PRAP are ready for public comment. He emphasized that it is still very early in the process. Additionally, he restated that the panel is interested in attaining input from the CAC after they discuss the HFBR alternatives.

Reed introduced the HFBR discussion panel: Les Hill, Dennis Quinn, Bruce Lein, and Chuck Adey. He encouraged the CAC to evaluate the risks and benefits of the alternatives. He then asked the CAC take a moment to review the answers provided in response to the questions from the last meeting. Given this was the third information gathering session, Reed suggested the group identify issues, get answers from the panel and move forward to discussion. He stated it was timely for the CAC to provide input, as the regulators would be exploring the alternatives shortly.

Member Mannhaupt asked why the presentation on HFBR Safeguards and Security was on this evening's agenda. Jeanne D'Ascoli replied this was a response to questions from the previous meeting. It was thought the CAC would like to have the opportunity to speak to the subject matter expert and ask him questions directly. Member Mannhaupt requested the HFBR Safeguards and Security presentation precede the HFBR panel discussion. Member Esposito added that it wasn't discussed for the BGRR, and is now on the agenda for the HFBR, and asked if this was a big issue? Reed replied that it was not; the item had been placed on the agenda to be sure the CAC's primary questions would be answered. The CAC was in agreement to change the agenda and the order of presentations was reversed.

4. HFBR Safeguards & Security, Len Butera

Reed introduced Len Butera, Interim Manager of the Safeguards and Security Division. Butera was invited to the meeting to answer the CAC's questions on the potential risk of the HFBR as a terrorist target.

Butera greeted the CAC and told them that the HFBR is not considered a likely terrorist target and there is no credible in situ sabotage or theft threat.

Butera stated that the Lab's existing Safeguards and Security policies and procedures must comply with the DOE Design Basis Threat policy. The policy requires consideration of Special Nuclear Material, Category II and above; as well as highly radioactive material, which requires characterization and a determination that the materials be dispersible. Presently, the HFBR does not have any Special Nuclear Materials; all the materials have been shipped off-site. The inventory of radiological material inside the vessel is non-dispersible because the material is intrinsic to the metal used to make the components. The materials are self-protecting from the threat of theft due to high dose rates as direct exposure to the material could cause death in as little as five minutes.

Member Biss: Would there be any kind of protective armor or suit that would enable a theft to occur? Could you wear armor that would protect you?

Quinn: Any protection that could possibly be worn would be too heavy to move in. For protection against what is in there you would need something that weighs tons.

Adey: Additionally, for example, if we were to remove those control rods it would probably take several months to actually do the work. Any effort to remove radiological material takes a long, involved process. People couldn't go in, in a matter of hours to do this. It must be planned and executed in great detail. That would be noticeable and give security plenty of time to respond.

Member Mannhaupt: Could you clarify what you said before? If a terrorist got into the vessel, the amount of radioactivity in the vessel could kill him in five minutes? Is that a true statement?

Butera: The material is radioactive enough that it would kill someone in five minutes. Yes.

Member Mannhaupt: My other question is you stated all the materials have been shipped off-site but we have old control rods and casks that are stored in the Hazardous Waste Management Facility. How easy are they to get out?

Butera: The Waste Management Facility is in the Property Protection area. It is fenced and patrolled. If anyone tried to get to the facility, there would be plenty of time to stop them.

Member Mannhaupt: The control rods in those casks aren't Special Nuclear Materials?

Butera: No, they are radioactive materials but not Special Nuclear Materials.

Butera stated the security around the building, combined with the time it would take to access the radiological material would provide for timely interdiction by security forces. Butera said the Lab works to control access by limiting public access, guarding entrances with an armed security force and limiting HFBR access to employees, guests, contractors and visitors with legitimate reasons to visit the site. Additionally, security forces screen all personnel and vehicles entering the site. Butera told the CAC these safeguards will be in place throughout the entire HFBR process. As a federal facility that builds and operates major scientific facilities, BNL warrants implementing and maintaining a strong security position.

In response to the previous question about potential risks from an aircraft hitting the HFBR, Butera stated the risks are deemed negligible because the radioactive material is in a non-dispersible form and all fuel has been removed.

Member Mannhaupt: If a terrorist entered the vessel, he'd be killed in five minutes, but an airplane hitting the vessel would not cause harm? What is the difference?

Butera: This is due to the non-dispersible quality of the material. The material would not readily disperse if it were broken apart by an airplane. But if you are in the vessel, you are close enough to the radiological inventory to get a dose rate that can harm you.

There were no further questions. Reed thanked Len Butera for the presentation.

5. HFBR Panel – Questions and Answers, Les Hill, Dennis Quinn, Bruce Lein, and Chuck Adey

Reed reintroduced the panel and invited the CAC to begin the question and answer portion of the evening in order to move toward discussion.

Member Garber: Couldn't the radioactive materials in the HFBR be used for experiments on the existing experimental floor? When I asked previously, the answer was though there was some consideration; the conclusion was there could be no useful application. If one of the options has to do with letting the reactor sit for a long time, could it be used to study the effects of radioactivity on various type of plants or bug life, or for science fairs and things like that, to educate the population on radiation? I appreciate that it is tricky for the Lab to get students into what was formerly a reactor vessel. I have a vision that it could be a good thing to familiarize people with radioactivity. Could it be used for experiments? If that could come about, I think that the option to "mothball," waiting for things to cool down, could be very different in terms of public perception. I could see no better use for the site than to start educating people about radioactivity. If there was a positive use for the experimental floor during the waiting period, I think that would change the Diaspora.

Reed: We have a request from Member Garber to consider using the residual radiation in the components for experimental and educational purposes.

Hill: I am not aware of any uses for the reactor or the radiation fields emanating from the reactor. We will talk to some of our colleagues from the Laboratory and others to see if there is any potential for that.

ACTION ITEM: If the decision were to do nothing and "mothball" the facility, would there be any way to use facility to educate people, or use the radioactive material for teaching or experiments?

Member Mannhaupt: As I understand it, we came up with the 75 years from looking at Hanford. Did we come up with the 75-year alternative based on a Hanford baseline?

Hill: No.

Member Mannhaupt: Where did you come up with this number?

Hill: The time required to decay the large components in the reactor vessel down to 100 mrem at one foot was 75 years. It was actually 73 years plus or minus to achieve the desired radiation level.

Member Mannhaupt: Can we revisit the documentation every so often, if we agree that 75 years is desired? To determine if it has to move back or it needs to move up?

Hill: Whatever decision will be made for the reactor will be revisited every five years, under the normal five-year CERCLA review.

Member Mannhaupt: I am asking because the reactor is not a CERCLA project. It is not under Superfund clean up or Superfund law.

Hill: That is true, however, the DOE has agreed that the decommissioning of the reactor would be done under CERCLA. There are a number of ways to do the work but this reactor will be done under CERCLA and because of that there will be a five-year review.

Member Mannhaupt: It will definitely be D & D'd under CERCLA? And all CERCLA laws will apply?

Hill: Yes. We have Rod Rimando from the DOE with us tonight, perhaps he would like to answer that question.

Rimando: My name is Rod Rimando. I am from the DOE Office of Environmental Energy in Washington. I have been running the project. There are a number of different ways through which we could decommission a nuclear facility. The HFBR is not currently identified as an Area of Concern in the Brookhaven Interagency Agreement, which is basically the CERCLA section 120 Federal Facility Agreement equivalent. But throughout the decision-making process, we are following that framework; the response action framework. When we select the remedy, it will become an Area of Concern under the IAG. That will happen just as the proposed plan gets issued. There are several benefits to that. One is the Five-year Remedy Revenue Review that is required by the CERCLA. Because we are going to be leaving radioactive material in place to allow for decay over a long period of time, getting a Record of Decision (ROD), as a matter of public record, actually obligates the federal government to make sure that we insure it remains protected and secure. The advantage of keeping the project in the CERCLA process is the Revenue Review, the ROD and many of the different controls that make sure the government fulfills its obligation. It gives the government the basis to keep going back to Congress to make sure we indeed do get the money for that kind surveillance and maintenance, especially over a long period of time. One fine point is this is not a Superfund cleanup because that is actually a separate fund. At the DOE we have our own appropriations. We get the money through the Energy and Water Bill. There is a slight difference that becomes really important when you look at what happens when construction is completed, in other words long term. I know this was a long response but I hope it answered your question.

Member Mannhaupt: As of right now, the DOE area office, DOE headquarters and BNL itself all concur that the HFBR will be treated as and proceed under CERCLA regulations?

Rimando: Yes. We are following that process as we speak. We are going through the characterization and it is almost complete. We've put together the Feasibility Study.

Member Mannhaupt: I know the framework has been started. Right now it is an intangible thing. I want to see we when get to the ROD that it is an absolute thing.

Rimando: You will see that in the proposed plan. It becomes a matter of public record as we formally establish our Administrative Record. It becomes a public document. The formality is solidified once the DOE issues the proposed plan.

Member Mannhaupt: Collectively, we are about to leave a legacy. It has to be as enforceable as possible if the community is going to buy into a 75-year plan.

Rimando: That is a very important point. That has been a topic in our discussions with the EPA. That was most important to the federal agency that oversees us as well as the State. They want to maintain some hold on the DOE, the enforcer, and by keeping this under CERCLA with a ROD, EPA still retains a portion of authority and oversight over the DOE. If for some wild reason the DOE decides to back away from its commitment, the arm of the EPA would be there to bring it back in line.

Member Mannhaupt: How much of the Hanford baseline are we using? During the last panel discussion things were mentioned about Hanford's reactor and how the DOE and contractors

did things there. How much of that is being reviewed to look at the HFBR to see what can be done?

Hill: We are looking at the operating experience at Hanford and all government reactors. We have looked at reactors across the United States. At the last meeting we were asked if we factored in the experience of the decision-making processes used elsewhere. There is not one particular reactor that has been dominant as far as influencing any of the alternatives that have been considered. We're looking at all the projects. Hanford has not had any more influence than others.

Member Mannhaupt: I would like to go on record and say that Hanford is suspect after the 60 Minutes interview and the DOE investigating Bechtel. I would not like the work done at Hanford used to determine work on the HFBR. There have been serious concerns about shoddy work there.

Member Esposito: I have a couple of questions of clarification about the control rod blades. I thought that when the HFBR was still operating these blades were something that would need to be routinely changed. In the past, were they taken out on a certain schedule?

Adey: They were not taken out on a schedule but over operating time they were tested for effectiveness. When they started to lose their effectiveness they would be replaced by new ones.

Member Esposito: If they were taken out in the past when they'd lose their effectiveness, why now do we need to wait 75 years to take them out? If the facility was still operating and the control rods were going to be removed because of lack of effectiveness, what's the difference? Why can't we do that now and not wait the 75 years? I am confused about what the difference is.

Lein: When we operated the reactor, the water was in the vessel and the spent fuel pool was in operation. Everything was in place. It was just the normal routine. There were other components in the vessel that would need replacement over time and there was a design to have that done. Now that the reactor is shut down, those systems are not in place. The control rods could not be taken out without the flooding and the technology to perform the work.

Member Esposito: I clearly remember the debate when the HFBR was under the microscope in 1999, 2000, 2001, and 2002. Part of the discussion and decision was to leave the fuel pool there because when we got to this point, the decommissioning and decontamination, the fuel pool would come in handy because we could fill it up with water. Now you're saying you don't want to fill it up with water. Why did we make that decision if now you're going to back away from it?

Hill: When the reactor was operating, the fuel pool was available to receive and store highly radioactive materials. The fourteen control rod blades that were taken out many years ago were transferred into a cask under water. The cask was transferred to the Waste Management Facility on-site after the blades were placed in the pool for a substantial period of time and they had decayed even more. These control rod blades can be shipped out now because they have cooled for such a long time. We are looking to do so during the next fiscal year. The control rod blades in the vessel now have not had the decay period that the earlier blades passed through, they are more radioactive. These control rod blades could not have been removed 20 years ago, put in a cask and shipped off-site because there was no cask available that had sufficient shielding. Not only did you need the spent fuel pool to transfer these blades into the cask but a cask with sufficient shielding to put them on the road. That distinguishes the blades that are in the vessel right now from the blades that are up in the facility. We described the critical points in time for various demonstrable changes in the levels of remaining radioactivity at the last meeting. You don't need 75 years of decay to take out the control rod blades.

Member Esposito: A scenario was given of 0 years, 10 years, 30 years and 75 years. The remaining radioactivity started at 124,000, then went to 16,000, to 3,000 and to 2,000. There was not a lot of loss between 30 years and 75 years.

Hill: We have a control rod blade by control rod blade account of radiation levels and the concentrations of nuclides. We can provide a very detailed account of the differences between the blades that are going and the blades we are discussing now. The issue with the control rod blades in the vessel now is even if they were taken out of the vessel and put into the spent fuel pool; they could not be shipped unless they were cut up. That's what leads to segmentation, 24 shipments and so forth.

ACTION ITEM: Provide information about the differences between the control rod blades in storage that were previously removed from the reactor and those that presently need to be removed from the vessel. Provide information about the radiation levels and the concentration of nuclides in the control rod blades.

Member Esposito: The scenario is that after 30 years you could ship them out with one cask?

Hill: Exactly, yes.

Member Esposito: I agree with Jean, what guarantees do we have for the 75 years? We prefer to limit our legacy of contamination and if we could do this in 30 years as opposed to 75 years that seems more prudent to me.

Member Garber: My recollection is that the presently available casks could not take the radioactivity of an intact, un-segmented control rod. However, the control rods would fit in something that was the volume of a cask. The suggestion was made that in about five or six years you might be able to license a "super cask". The fuel rods would be a small volume of the existing cask's dimension. If in five or six years the "super cask" was licensed and available, then possibly within a ten-year period, the cask could be pulled out, put into the "super cask" and then shipped. However, that is not the answer to the whole problem because there are many other not as radioactive elements in the vessel, infrastructure, that you would still have to chop up. But there are ways to expedite the removal of the control rod blades.

Reed: We have a recommendation from Adrienne that we remove the control rod blades and ship them as soon as it can be done without segmentation, which may be 30 years. A follow up by Don says if shipping containers, casks, become available that would allow us to do it sooner than that, we revisit the timeframe and do it as soon as technology is available to ship.

Member Esposito: A point of clarification. The no segmentation timeline gives it ten years.

Reed: Ok, understood.

Member Proios: As everyone knows, I'm not a proponent of chopping up reactors and putting non-dispersible form into dispersible form. That was my main objection to the BGRR being cut up. I did ask the question about the conflicting decommissioning of plants happening all at one time and I appreciate this information being put all in one place. This is very useful. It is unfortunate that some of the problems we have been talking about for years still exist, not having enough transportation, not having a repository. It is amazing that the DOE has not put themselves on track to address these issues. We need to have a national program to address the whole problem of reactor waste. I did not realize there were so many plants in such different stages of decommissioning across the country. When you have all these other reactors in various stages of decommissioning, who at the DOE is responsible for looking at the whole picture? In order to determine whether or not you have enough casks, let's say, for transportation, is it whoever gets their name on a list first is the one who's going to use it in five

or ten years down the line? Cornell is decommissioning and Hanford has three plants currently being decommissioned. How is it determined when you want to ship all this stuff around? What is the procedure? Is there one person that you can go to in the DOE that's looking at the whole national picture who is trying to figure out where the material is and how it's going to be transported and what's going to be done with all this material?

Hill: DOE Headquarters has resources that go over transportation. I would have to go back to the research and get back to you to let you know what they look at. From my experience in the commercial power business, the DOE does not have all the information on transfers from all the different power plants, though the DOE can certainly monitor a piece of it. I'll get back to you on what the DOE does centrally. They have transportation experts that look at logistics and transportation in terms of weights and volumes to be transported across the nation. We need that information locally. The DOE looks at all of this information, what the resources are that are available as far as the bulk waste is concerned so I'll have to get back to you. I can tell you they track the paperwork on volumes of crude oil in the system. That has to be managed as bulk waste.

Member Proios: The volume in the commercial waste dwarfs what we're talking about as far as a DOE reactor, doesn't it? As far as total volume?

Hill: The total volume of waste is smaller in a commercial reactor but a much higher percentage of that waste is highly radioactive. That is sent away in casks. The same type of thing occurs when you ship control rod blades, for example. The volume is smaller but a much greater percentage of higher radiation levels go out in the storage casks.

Adey: I would just add one point, that the highest radioactive dose components from those commercial reactors are not disposable and you'd have to store them on-site in independent spent fuel storage casks.

Member Proios: That's my point, that you have a lot of stuff at a higher level that is going to be buried or be stored in communities, like Millstone, like near us, yet we're talking about transporting lower level waste from different locations. I'm just wondering what we're saving in the long run in terms of protection.

Reed: So, the question is looking at DOE as a department, what is the programmatic plan and planning process for shipping and disposal of highly radioactive waste and how would that be carried out?"

ACTION ITEM: Provide information about what the DOE centrally monitors relative to shipments of radioactive material. What is the programmatic plan and planning process for shipping and disposal of highly radioactive waste and how would we carry that out?

Member Chaudhry: How much does the role of cost play in leaning towards accepting a proposal? Safety should be more important than cost. In my opinion the cost should not be as important a factor. People should not be left sitting and waiting, running the risk of having radioactive materials survive here for 75 years. There must be a third alternative between Alternative D and Alternative C.

Reed: A two part question, why is there not an intermediate alternative between C & D and is the cost of these alternatives coming into play in your decision about the preferred alternative?

Hill: There is no preferred alternative, all alternatives are under consideration. As far as CERCLA is concerned it looks at long term effectiveness, the overall protection of human contact and safety. Cost becomes a balance, so it has to be looked at for that purpose and that purpose only. As far as looking at immediate values, we selected 75 years because that's what got us out to 100 mrem for the large components. There are an infinite number of permutations

that can be looked at. We didn't look at all of them, we chose 75 years because of the 100 mrem benchmark that was established. We didn't pick the 75 years, we looked at how long it would take to get to 100 mrem on the components and that was the answer. We were looking to have a technical basis for where that took us in terms of duration. Clearly there is any number of permutations that could be analyzed or considered.

Member Chaudhry: When you're doing projects that take as long as 75 years, you are talking the third generation away from this one. I think it is valuable to spend another two or three weeks coming up with two more alternatives which would put people at ease. Again, how much weight do you give to cost as opposed to human protection?

Hill: Whatever remedy is ultimately decided upon will protect humans first regardless of the cost of the remedy. That's required.

Member Chaudhry: The longer you wait for this kind of project, the longer you are at the mercy of federal government funding, which has to be provided for that long. There are all kinds of uncertainties about funding a future project. They may easily cut funding. The DOE may have a low priority 30 years from now and they may not have enough funds. I am leery of committing to a long-term project.

Hill: As Rod Rimando mentioned earlier whatever remedy is selected will be reflected and documented in a ROD. The DOE will be required to honor all of the requirements of the ROD and that would include whatever surveillance and maintenance that would be required to maintain the facilities in a safe condition. If Alternative B or C were selected the DOE would be obligated under an enforceable agreement with the EPA and the State of New York to provide the funds. The ROD would obligate them to have regulatory agencies at the state level and the federal level take action on the DOE. That is why the work on this reactor facility will have gone through CERCLA and will have a ROD process.

Reed: One of the things the Laboratory is asking for from the CAC is input on the specifics of the alternatives. Whether it's 75 years versus 30 years. That input is being sought from the standpoint of where your values are, where they are coming from and how you would like to see these tuned potentially?

Member Mannhaupt: With respect to the panel, I understand that you believe the DOE is going to follow the ROD in 75 years. I don't believe it. It's going to be the wording in the ROD and the particular way we put those words together to make it as enforceable as possible. The law is left up to the decisions of attorneys that see it from one point of view or another. I hope the DOE running the site in 75 years would be as gracious and committed to the community as the office is now. But I'm not willing to risk that. I am going to fight to make sure the wording of the ROD is done so that as much as can be seen into the future, is seen, should 75 years be the alternative. I take the responsibility for that issue alone very seriously because I don't want to leave anything for anybody. Now, can the panel describe where the gamma emitter is, what is it doing and are you worried about it? Is it all just part of what's going on in there? How serious is it and can the gamma emitter be cleaned up right now? Regardless of cost, do we have the technology, the manpower, the transport and the place to put it? Can we do it right now?

Hill: Yes.

Reed asked for clarification on the question.

Member Mannhaupt: I want to know more about it. Specifically, where it falls in with the radionuclides. What you are concerned about that I should be concerned about and what I should be looking for.

Quinn: Gamma emitters are different radionuclides that are contained in the control rod blades. There are some gamma emitters, for example the isotope europium and cobalt. They are in the metals themselves. That's true for the control rod blades and to a lesser extent the reactor vessel, though it is not as radioactive. All the components contain radionuclides as a part of the metal itself. Some of them are gamma emitters and some are beta emitters. The gamma emitters, surrounded by five-feet of concrete, cannot get outside of that. You have to be in the physical presence of this material, in reasonably close proximity, without a large mass of material in between. If you are five feet away from a container, that would be extremely dangerous. Five feet away, through heavy concrete laced with lots of steel to give it more mass, that's going to shield most of that. It is how close you are to the material and what is between you.

Member Mannhaupt: I understand that, but the question is how concerned are you about the gamma emitters and what are we going to do about them?

Hill: In what sense do you mean? In what context?

Member Mannhaupt: I understand most of the gamma emitters are in the control rod blades?

Hill: Right now, two thirds of the inventory is in the control rod blades and one third is dispersed in the thermal shield surrounding inside the reactor vessel.

Member Mannhaupt: Back to my original question, if you had unlimited money right now, you would have no fear to send worker in right now to remove those control rods that include those gamma emitters?

Hill: The job can be done. With any reactor we don't operate in fear. We operate with very diligent protection of human beings, here, along transportation routes and everywhere. We are very concerned about all workers. I am not fearful of taking the entire HFBR reactor facility apart. The technology is there. By way of example, Maine Yankee nuclear power plant is perfectly fine. This is a reactor plant that is much larger than the HFBR. Each facility has its own unique idiosyncrasies. The job could be done. I would not be fearful of it, but we would take every precaution to make sure people are out of harm's way.

Member Mannhaupt: The question of 75 years to get it down to 100 mrem is a question of money, not of safety? Not of doing the work, not of technology?

Hill: The 75 years is an alternative to reduce risk. If you reduce radiation levels, you reduce risk. Am I fearful of doing something? No. Are there risks associated with it? Yes. Risks have to be carefully managed, dealt with and mitigated. When you look at the spectrum of alternatives there is less risk associated with doing this kind of work 75 years from now. I look at the balance. If the work is done now there are certain risks and aspects you have to evaluate and consider. If the work is done later, you also have risk. The 75 years is not a financial consideration, it would be within the risk spectrum of what alternative makes sense. The job could be done now. Would anybody be fearful? No. But would the dose rates cause you to be extremely careful? Absolutely.

Member Mannhaupt: Based on all your professional backgrounds, the 75-year alternative is a best practice to D&D the HFBR?

Hill: I'm not saying best practices to D&D the HFBR. It is an option and that option mitigates many, many risks related to radiation hazards.

Member Mannhaupt: So this alternative has to do with less risk?

Hill: Yes.

Member Mannhaupt: I'm trying to understand why the 75 years, why not 65? You told me 100 Mrem. So it's a risk issue, not an economic issue. It's a worker safety issue, as far as doing the job, an issue of being in contact with it.

Hill: Yes. Everything is dominated by cobalt 60 and its half-life. You are talking about a continuum of possibilities. The dose rate at 65 years would be 400 mrem. If you go back to 60 years, it's about 800 mrem. As you go back and you start to get an excess of mrem, the complexity of the job increases. Somewhere on the continuum there is a point where the risks associated with the radiation start dropping off and complexity starts dropping off. A myriad of alternatives could be picked from the continuum.

Member Mannhaupt: So it is risk driven?

Hill: Yes, it was risk driven. 100 mrem at one foot can be readily handled.

Member Mannhaupt: And the difference between the BGRR and the HFBR is dispersion, absolute dispersion. But do they all concur with what you've said?

Reed: The question is do you all concur? Yes. We will hear from Bruce Martin and then we will take a break.

Member Martin: First question, if removal of certain components requires refilling the pool, are we talking about the same pool that initially leaked and caused the plume that resulted in the shutdown of the HFBR?

Adey: It's the same pool but since the leak it has been lined with a double liner and it will meet the code for Suffolk County.

Member Martin: Second, some alternatives range from leaving things in place, removing them from inside concrete, shielding and storing them locally, removing them from inside, shielding and moving them outside the containment building and then transporting them somewhere else, to be stored somehow. Since we had the presentation on HFBR Safeguards and Security, have these alternatives been evaluated as to whether or not one or another of the alternatives makes the situation more dangerous or creates more of a terrorist target? We heard as is, the HFBR is not a terrorist target. Do any of these transport and storage alternatives increase the risk from that standpoint?

Hill: Any of the alternatives that leave material in a building would leave the material in intact states. We would not take material from its present configuration and store it in a dispersible fashion. It would be left in its present configuration.

Member Martin: I thought the earlier speaker said, that because it's inside the building, which is an intensely radioactive area it couldn't be removed. Now if it's taken out of the concrete and stored somewhere else locally, isn't it more accessible?

Hill: None of those options involve taking it out and storing it locally.

Member Martin: For transport?

Hill: If you were to dismantle the reactor, you might transport 40 to 50 shipments from this site to a site out west. There would be a fairly large shipping campaign.

Member Martin: I guess my question is whether that increases the risk from the terrorist standpoint?

Hill: I would need to talk to Len Butera and get back to you.

ACTION ITEM: Get information about whether transporting radioactive materials increases terrorism risk.

Reed: There's only one card up, so what I'd like to do is get Adrienne's question and then go to break if that's okay.

Member Esposito: I think it is worth noting if we look at the packets we were supplied it does talk about other incidents where funding cuts mandated that safe storage options for the reactors that were supposed to have been D&D'd, had to be looked at. Also, have there been any other pilot reactors or small research reactors like this one, 60 megawatt, not commercial, where it is being proposed that they are in storage for 75 years? Are there any others in the United States that have asked to be "mothballed" for 75 years? Are we setting a precedent here?

Hill: There are several reactors out west, not only Hanford, which selected that remedy.

Member Esposito: Here it says that there are six reactors out in Savannah River with 13 units that are in safe storage for an average of 35 to 40 years. Globally, some are listed as 16 years and some permanently shutdown for as long as 30 years. Nothing talks about 75 years. I guess my point is we'll be the new Hanford.

Adey: The storage in Hanford is going out to 2068.

Reed: We're going to Mark for follow up and then break.

Member Walker: Were there three very similar reactors built around the world? One here, one in France and one in Hanford?

Lein: The three similar reactors were at Oakridge, Grenoble, France, and then the High Flux Beam Reactor.

6. Community Comment

There was no community comment.

7. Panel Discussion Continued and/or CAC Discussion

Note: The quality of the recording on the second tape was very poor. As a result not all comments were able to be transcribed in their entirety.

Reed reconvened the meeting and asked the CAC to move toward discussion after the last few questions.

Member Mannhaupt: In 1995 the Waste Programmatic Environmental Impact Statement was all on nuclear fuel. They tried to put together a national policy. Do you know whether that document went from its draft form to an actual national policy?

Hill: No.

Member Garber: Will the funding be there in 75 years? There is a credibility question. Has there ever been a program where there is a financial bonding or an account, to set aside an amount to use at the various stages to fund a project in 75 years?

Reed: The question is "Is there a possibility of, or an experience of, escrow accounts associated with decommissioning nuclear reactors?"

Rimando: The DOE does not have trusts or escrows for decommissioning.

Member Mannhaupt: How do you change that?

Rimando: An Act of Congress.

Member Garber: An account like that would provide a sense of good faith.

Member Esposito: Just a comment related to Bruce's question earlier, when the discussion occurred about why should we keep the fuel pool and invest in fixing the infrastructure and spend money on it, even though the HFBR was not going to be open, the answer was it was going to be used during the D&D process. That's what was used to justify the funding expenditure at that time.

Member Schwartz: I appreciate the materials provided as an answer to my question about other power reactors being decommissioned around the world. On page two of the document you provided, it says that 13 of 39 reactors shut down in France etcetera are currently being safely maintained in long-term safe storage. Twenty-six of them are being decommissioned in another way. Some were permanently shutdown as long as 30 years ago, from which I infer, some weren't shut down 30 years ago. This brings me back to my question; Are there alternatives prior to such a long waiting period? I thought Adrienne's suggestion of using the previously established route for getting the control rod blades out of the vessel and into the pool makes a fair amount of sense. We have an estimate right here about where the bulk of the radioactivity is and we have an established procedure for that. We can get it into the pool and into the casks we could make a lot of progress that way.

Member Schwartz also asked how the experience was perceived after a period of rest and if it was correct that certain risks were greatly reduced by waiting the 75 years.

Hill responded. He said that there were more than 13 reactors in long-term storage; there are 20 reactors in Russia alone that were placed in safe storage for 100 years. It all depends on many factors. He has seen the full spectrum of successes and failures. He said that Maine Yankee is being done well and Connecticut Yankee had issues.

Adey said that as a comparison, the Shoreham project was 100 mrem per hour, this one is 80,000 mrem/hr. He talked about the segmentation and the engineering and design.

Member Schwartz: Following the suggestion of using the previously established route for the control rod blades, would there still be segmentation involved?

Adey: It depends on the time. If you wait long enough and it decays then you do not need the segmentation. If you want to do it prompt, near-term as in Alternative C and remove the control rod blades now, and not 2009, you'd have to segment them.

Member Esposito: From ten years on, you would not have to segment, is that correct?

Reed: The cutoff time as to when you would have to segment versus not segmenting is about ten years. Is there any follow up?

Member Garber: That's predicated on the cask, the super cask design.

Member Esposito: So you're saying you need the cask to

Member Garber: You spend five years getting the super cask ready and then you have five years time (inaudible)

Member Esposito: Currently we're at ten and could go down to five?

Reed: Right, if the licensing process were accomplished, it could be five years.

Member Proios: Could we clarify the potential risk to workers? Even though it could be done, if an accident occurs, obviously the consequences are great. So let's take the scenario with the BGRR and within the first week, one of the worker's suits got ripped. If we were taking it to the pilot study would the worker exposure be the same or (inaudible) if the job were done today, it would be at what risk?

Hill responded. He said that you don't have the natural decay and that it is clearly a risk balance issue. He also compared the mrems per hour.

Member Proios: My point is that what are the chances that would happen? There were two accidents last month here. The new interim director speaks and states he's focusing all his people at the lab on safety. In fact he even went so far as to say that if people neglected to follow protocols there would be corrective action and he could even fire them. The chances of accidents happening are just part of life, the question is what are the consequences? If the radiation levels are low, the consequences are very small. If you're talking about doing it when the levels are so high because you want to expedite removing it but then you expose more people to more harm. That's a major issue to focus on.

Hill: All work dealing with radiation levels of this nature is a balancing act. Yes, it can be managed. The bells and whistles and checks and balances and controls can be managed when you're dealing with high radiation components. There is a difference when you're dealing with high radiation dose rates. I don't want to scare you, I just want to tell you a balanced, objective reflection and let you (inaudible)

Member Esposito: But will there be funding later?

Hill: (inaudible)

Member Mannhaupt: Before, when I asked if it could be done now, if unlimited funding was available the answer was yes. But Don brought up a good point, it can't be done now because we don't have the "super casks".

Adey: If you did it now you'd segment.

Member Mannhaupt: I need to know, where the different levels of risks are and what are the different percentages of those risks? It's all a risk but each one has a difference and a higher percentile.

Member Sprintzen: It's not just an abstract question of risk. There are different risks for different populations. The risk might be greater now for the workers, but greater then...so the question is it's not just abstract risk versus cost but it's different populations under different scenarios.

Adey: We'll have to get back to you on that.

ACTION ITEM: Clarify risks to different populations as related to the alternative timeframes.

Reed: You saw balances last time, where there were different risks for different populations under different circumstances. What you're trying to get is some information so that you can (inaudible)

Member Henigin: I would like to clarify the difference between the 2009 and the 2012 dates. Is 2009 still the point at which you have to segment the control blades and the 2012 the point where you don't have to segment?

Hill responded and there were some additional questions about why there was three years difference in the time for removing the control rod blades in Alternative D. Reed clarified that the difference between 2009 and 2012 is not about radiation and decay but the amount of time it would take to do the job.

Member Martin: Looking at choice A, what is the risk of leaving things as is?

Hill described the reactor systems and the vessel. An eight-foot thick biological shield surrounds the vessel. It's robust and very stable. You could walk just about every place in street clothes and there would be no problems. In the present day to the foreseeable future the risk is low. If you look at the 75 years, you have to have air and dust controls. You don't have an end to this. When you talk about five years, ten years it's no problem but even though the radiation risks are coming down, after a while you start accruing risks and uncertainties.

Member Mannhaupt: Have you had discussions with regulators? Do they have the same mindset?

Hill: The documents are in for review...(inaudible)

Member Esposito asked when the PRAP would be completed.

Hill: After Labor Day.

8. Agenda Setting

Reed encouraged the group to think about their internal discussion and invited Jeanne D'Ascoli to discuss presentation options pending for the next meeting. Jeanne told the CAC the g-2 and BLIP ROD and public comment period were approaching and a presentation on g-2 alternatives would be timely for the July meeting. Additionally, Jeanne felt it would be appropriate to give a presentation on the Environmental Assessment for NSLS II. Les Hill offered the option of a special workshop to discuss HFBR exclusively. After discussion, the CAC decided to hear the alternatives for g-2 and move the discussion portion of the HFBR to July, in an effort to discuss HFBR in a timely manner while the information is still fresh. Jeanne also mentioned Member Sprintzen's request for an article on nano materials to be distributed to the group and inquired if e-mail would be an effective vehicle for that request in the future. Jeanne suggested a planned discussion in the future on nano materials so that information could be presented fully to allow the CAC the opportunity to speak with the nano team.

Member Garber asked that a discussion related to the overpopulation of deer be added to the agenda at an appropriate point. Member Esposito commented that the CAC focus on items related to the Laboratory.

Member Mannhaupt announced that NEAR has received its final payment and the corporation will be dissolved by the end of July. Member Mannhaupt noted that her final meeting with the CAC would be in July.

July 06 Agenda

HFBR CAC Discussion
g-2 alternatives

Meeting adjourned 9:12 p.m.

Flip Chart Notes – HFBR issues raised by the CAC

1. CERCLA process and authority.
2. Wording of requirements for out years.
3. Removal of control rod blades as soon as possible without segmentation. (10 years?)
4. Removal of control rod blades early if technology improves or “super cask” licensing occurs earlier.
5. Are there alternatives between C & D?
6. Is there a programmatic strategy for decommissioning reactors and transporting waste in DOE?
7. Guarantee of funding or escrow account.
8. Use of fuel pool during decommissioning.

2006	Affiliation		First Name	Last Name	JAN	FEB	MAR	APR	No Mtg MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Chart Key - P = Present																
ABCO (Garber added on 4/10/02)	Member	Don	Garber	P	P	P	P			P						
ABCO	Alternate	Doug	Dittko													
Brookhaven Retired Employees Association	Member	Graham	Campbell		P	P	P			P						
Brookhaven Retired Employees Association (L. Jacobson new alternate as of 4/99)(A. Peskin 5/04)	Alternate	Arnie	Peskin		P					P						
CHEC (Community Health & Environment Coalition (added 10/04)	Member	Sarah	Anker	P		P				P						
	Member	Adrienne	Esposito	P			P			P						
Citizens Campaign for the Environment (Ottney added 4/02-takenoff 1/05 Mahoney put on)	Alternate	Brendan	Mahoney	P	P											
E. Yaphank Civic Association	Member	Michael	Giacomaro	P	P	P										
E. Yaphank Civic Association (J. Minasi new alternate as of 3/99) (M. Triber 11/05) (Munson 6/06)	Alternate	Brian	Munson							P						
Educator	Member	Audrey	Capozzi													
Educator (B. Martin - 9/01)	Alternate	Bruce	Martin							P						
Educator (A. Martin new alternate 2/00) (Adam to college 8/01)(add. alternate 9/02)	Alternate	Adam	Martin													
Environmental Economic Roundtable (Berger resigned, Proios became member 1/01)	Member	George	Proios	P			P			P						
Environmental Economic Roundtable (3/99, L. Snead changed to be alternate for EDF)	Alternate	None	None													
Fire Rescue and Emergency Services	Member	Joe	Williams													
Fire Rescue and Emergency Services	Alternate	Don	Lynch							P						
Fire Rescue and Emergency Services	Alternate	James	McLoughlin		P											
Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)	Member	Ed	Kaplan	P		P										
Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)(Schwartz added 11/18/02)	Alternate	Steve	Schwartz			P	P			P						
Health Care	Member	Jane	Corrarino	P		P	P									
Health Care	Alternate															
Huntington Breast Cancer Coalition	Member	Mary Joan	Shea	P		P	P									

2006	Affiliation		First Name	Last Name	JAN	FEB	MAR	APR	No Mtg MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Huntington Breast Cancer Coalition	Alternate	Scott	Carlin												
	Intl. Brotherhood of Electrical Workers/Local 2230	Member	Mark	Walker	P	P	P	P		P						
	IBEW/Local 2230	Alternate	Philip	Pizzo												
	L.I. Pine Barrens Society	Member	Richard	Amper												
	L.I. Pine Barrens Society (added P. Loris 6/05)	Alternates	Elina	Alayeva			P	P		P						
	L.I. Progressive Coalition	Member	David	Sprintzen	P	P	P	P		P						
	L.I. Progressive Coalition	Alternate	None	None												
	Lake Panamoka Civic Association (Biss as of 4/02)	Member	Rita	Biss	P	P	P			P						
	Lake Panamoka Civic Association (Rita Biss new alternate as of 3/99)	Alternate	Joe	Gibbons												
	Long Island Association (Groneman replace 10/05)	Member	Lauren	Hill	P					P						
	Long Island Association	Alternate	William	Evanzia		P	P	P		P						
	Longwood Alliance	Member	Tom	Talbot	P	P		P		P						
	Longwood Alliance	Alternate	Kevin	Crowley												
	Longwood Central School Dist. (switched 11/02)	Member	Barbara	Henigin	P	P	P	P		P						
	Longwood Central School Dist.	Alternate	Allan	Gerstenlauer												
	NEAR	Member	Jean	Mannhaupt				P		P						
	NEAR (prospect taken off 3/4)(blumer added 10/04	Alternate	Karen	Blumer												
	NSLS User	Member	Jean	Jordan-Sweet	P	P	P	P								
	NSLS User	Alternate	Peter	Stephens												
	Peconic River Sportsmen's Club (added 4/8/04)	Member	John	Hall	P		P	P		P						
	Peconic River Sportsmen's Club	Alternate	Jeff	Schneider												
	Ridge Civic Association	Member	Pat	Henagan	P	P	P	P								
	Science & Technology (added 1/13/05)	Member	Iqbal	Chaudhry		P	P	P		P						
	Town of Brookhaven (Graves made member 6/06)	Member	Anthony	Graves	P			P								
	Town of Brookhaven	Alternate	None	None												
	Town of Brookhaven, Senior Citizens	Member	James	Heil	P	P	P									
	Town of Brookhaven, Senior Citizens (open slot as of 4/99)	Alternate	None	None												
	Town of Riverhead	Member	Robert	Conklin	P	P	P	P		P						
	Town of Riverhead (K. Skinner alternate as of 4/99)	Alternate	Kim	Skinner												
	Wading River Civic Association	Member	Helga	Guthy	P	P	P	P								
	Wading River Civic Association	Alternate	Sid	Bail						P						